



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/592,936	09/15/2006	Koji Katano	129370	6051
25944 7590 12/28/2011 OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
EXAMINER				
LEE, CYNTHIA K				
ART UNIT		PAPER NUMBER		
1726				
NOTIFICATION DATE		DELIVERY MODE		
12/28/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com
jarnstrong@oliff.com

Office Action Summary**Application No.**

10/592,936

Applicant(s)

KATANO, KOJI

Examiner

CYNTHIA LEE

Art Unit

1726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1,2,4,5,7,9 and 10 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,2,4,5,7,9 and 10 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-CB00)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s) Mail Date ____

Response to Amendment

This Office Action is responsive to the amendment filed on 10/20/2011. Claims 1, 2, 4, 5, 7, 9, 10 are pending. Applicant's arguments have been fully considered and are persuasive. However, upon further consideration, the instant claims are rejected under new grounds of rejections. Claims 1, 2, 4, 5, 7, 9, 10 are finally rejected for reasons necessitated by applicant's amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 5, 7, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita (US 5039579) in view of Nau (US 2003/0132315).

Refer to fig. 1. Kinoshita discloses a fuel cell system comprising:

a fuel cell body 1;

a first portion 10 and a second portion 5 which cooperate with each other to jointly form a passage for hydrogen exhausted from the fuel cell body 1.

Regarding claim 4, the second portion is a hydrogen processing unit 5 supplied with heat from inflowing exhaust gas from the fuel cell body 1.

Regarding claim 5, the hydrogen processing unit 5 includes at least one of a dilution unit. Kinoshita's reformer 5 reads on Applicant's dilution unit because the reformer is diluted with water via line 21.

Regarding claim 1, Kinoshita does not disclose a hydrogen exhaust valve disposed in the passage between the first portion and the second portion; and

a spring member interposed between the hydrogen exhaust valve and one of the first portion and the second portion to urge the hydrogen exhaust valve directly against the other one of the first portion and the second portion,

wherein the first portion and the second portion are directly fixed to each other and are both continuously supplied with heat from the fuel cell body following start up of the fuel cell body. Kinoshita teaches a reformer 5 that combines the anode exhaust 10, fuel feed 14, and water 21.

Nau teaches a hydrogen exhaust valve 32 disposed in the passage between a first portion 14 and a second portion 15; and

a spring member 33 interposed between the hydrogen exhaust valve 32 and the first portion 14 to urge the hydrogen exhaust valve 32 directly against the second portion 15,

wherein the first portion 14 and the second portion 15 are directly fixed to each other and are both continuously supplied with heat from the fuel cell body following start up of the fuel cell body.

Nau teaches the reformer nozzle having the advantage that a gas/liquid mixture is generated which is distinguished by a high degree of atomization and thorough

reactant mixing. It also gives the system a good cold start performance and provides adequate response to dynamic load changes [0008].

It would have been obvious to one of ordinary skill of art at the time the invention was made to add the nozzle of Nau to the reformer of Kinoshita for the benefit of thoroughly reacting the feed mixture of Kinoshita's reformer.

It has been interpreted that the common wall 15 of Nau is part of the reformer.

Regarding claim 7, Nau teaches that the first portion 14 includes a cover 14 formed with an internal space that accommodates the hydrogen exhaust valve 32; and the second portion 15 closes the internal space of the cover within which the hydrogen exhaust valve 32 is disposed.

Regarding claim 9, Nau teaches that the hydrogen exhaust valve 32 is fixed to the first portion 14 and the second portion 15.

Allowable Subject Matter

Claims 2, 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The closest prior arts are Kinoshita (US 5039579) in view of Nau (US 2003/0132315).

Regarding claim 2, Kinoshita modified by Nau does not teach wherein the first portion includes at least one of a gas-liquid separation unit and an end plate provided in a stack configured by the fuel cell body. Kinoshita modified by Nau teaches that the first portion is a fuel line.

Regarding claim 10, Kinoshita modified by Nau does not teach wherein seal mechanisms are respectively interposed between the hydrogen exhaust valve and each of the first portion and the second portion.

Response to Arguments

Applicant's arguments filed 10/20/2011 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/
Primary Examiner, Art Unit 1726